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INJURY RESULTING FROM ELECTRICAL TREATMENT.¹

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I HAVE been led to select this topic by observing, oftener than I think could be due to mere coincidence, some evil effects from the application of electricity. I conceive that it is very important to warn practitioners of this possible danger, and to explain its source.

Electricity does not act alike upon all persons. In this it resembles many other nerve remedies, and even articles of diet, as spirit, tea, coffee, and tobacco, which in certain individuals produce apparently opposite effects from those regarded as normal. The closest and most intelligible analogon of this fact is found in the effect of a cold bath. Most persons are exhilarated; a few seem to be capable of bearing an indefinite amount, while others are chilled or prostrated for days by a single plunge. A sense of exhilaration is, in like manner, a very common attendant upon the electrical treatment; but some never feel it, others feel it irregularly, and others cannot bear the least amount without apparent injury. Another point in which bathing resembles the electrical treatment is the frequency with which sleep is produced. Sometimes a patient is hardly able to get out of the room for drowsiness; at other times the feeling comes on an hour or two later; it were greatly to be desired that this effect could be so managed as occur at the right time for sleep, but I am doubtful whether this can be accomplished with any certainty. The hypnotic action of electricity, however, is certainly of value.

It would be possible to explain all the actions of electricity by the simple word, "stimulation." I am not aware that there is any evidence that electricity acts like tea and alcohol, by arresting waste and supplying material for consumption. On the contrary, it seems to me, from clinical observation, that its action rather resembles that of alteratives which increase elimination, and that, like these, its use protracted beyond a certain point may rapidly run down the system. And this effect may be produced at the same time that each individual application gives a sense of relief or of increased vigor, which, though

¹ Read before the Boston Society for Medical Observation, October 1, 1877.

brief and soon replaced by lassitude, is so decided while it lasts as to tempt both physician and patient beyond the limits of prudence. It is this result that physicians should be warned against. There is, also, a temptation to try large doses where small ones do not succeed, and it must be confessed that respectable authority for such practices is not wanting.

Although there are few direct warnings in text-books, there is a rule laid down for practical guidance which amounts to the same thing. We are advised, in brief, to give but one or two dozen applications, and then to wait for a month or two in the expectation that the curative process, once commenced, may go on of itself in the interval. This may be a correct view to take, but I should like to add that the long pause may be simply a necessity in order to enable the constitution to recuperate its forces.

There is a popular notion that we merely pour in electricity as water is poured into a flower-pot, and the question is often asked whether the electricity remains permanently in the system, or how long it remains. To a scientific mind this is simply nonsense, but it is a view which is capable of doing harm if the physician imagines that his object is to fill his patients full of electricity.

A very large number of cases are *not* harmed, however, and I wish to illustrate this from the records of a former private dispensary for nervous diseases. Of one hundred and eighty cases treated there in succession many came but once, many were in no need of electricity, and many had a mixed treatment; but there were twenty-nine instances of decided benefit or cure through the use of electricity, and none of injury from its effects. As regards the diseases most often treated it will be instructive for us to go briefly through this list of cases benefited. I give them without classification:—

Shock to spinal cord from fall on occiput; debility, pain, and stiffness; cure.

Lead palsy, nearly cured.

Strain of aponeurosis and weakness, immediate great relief.

Rheumatism of biceps and trapezius, ditto.

Tremor of hand (aged fifty), direct relief to tremor and pain at each application.

Lead paralysis, improved.

Hemiplegia, hand decidedly improved.

Paresis of hand from confinement after a dislocation, decided immediate improvement.

Myalgia, came twice, reported "much better."

Myalgia, decided permanent relief.

Myalgia, twice faradized, with immediate improvement; a third time, said she was well, and very thankful.

- Myalgia, faradized with temporary relief.
Torticollis, apparent temporary gain, but always relapsed.
Myalgia, faradized with immediate relief.
Muscular debility from disuse after a blow and pain, entire relief.
Asthenia and myalgia, greatly improved.
Paresis of the fracture, ditto.
Myalgia and irritable spine, much permanent relief.
Debility from onanism, immediate improvement in feelings, and apparent vigor for a day or two after each application.
Myalgia, immediate benefit.
Eczema, ditto, from one application.
Insomnia, dull and queer feelings in head from overwork at music, faradized once, felt better for a fortnight.
Myalgia and feebleness resulting from a strain, one application, decided relief.
Peripheral palsy, relief.
Cutaneous anaesthesia of fingers, patient says she is better each time.
Myalgia, three cases, relieved more or less.
To illustrate the injury sometimes done by electricity, I beg to present the outlines of five cases from my own practice, which are all that I can find distinctly recorded :—

CASE I. *Rheumatic Arthritis in a Lady aged Fifty-Five.* — There is a decided predisposition to this complaint in the patient's family ; in her own case it has existed for a great many years, and has made considerable progress in the knuckles and knees.

The usual galvanic treatment directed to the painful spots, and also to the spinal cord, appeared on the second application to remove the pain directly, and to impart a sense of increased vigor of body, which was frequently experienced in subsequent applications. The treatment was applied two or three times a week for twenty times in all. But after perhaps the tenth time, I began to treat the knees locally, with occasional use of the application to the stomach and nape of neck as directed by Althaus. The former success, which had been extremely encouraging for two or three weeks, now became less marked. The pain, which had not been very severe, was violent, the knees became distended, hot, and red, and, in short, a regular attack or exacerbation of the disease occurred, which cut short the electrical treatment. Whether the electricity brought on the attack is not absolutely certain, but it appears to me that it may reasonably be thought to have done so ; and in any case I should in future be cautious about continuing treatment if any signs of exacerbation appeared during the course of my operations.

CASE II. *Spinal Exhaustion in a Business Man of Thirty-Three, otherwise Healthy.* — There is no neurotic or rheumatic family history.

When young, the patient had headaches, but they have been better within a year. He has had no bad habits. He is not naturally very enduring, but has average strength. At the present time he has a good appetite; his appearance is that of a man of fine physique; his form is good, his muscles clean and handsome, reacting with unusual readiness to the faradic current, though he has never practiced gymnastics. The present debility has been coming on very gradually; he ascribes it to the close confinement and the mental annoyance which attended his business for nine years. He has now been out of business for ten months. He sleeps well, but wakes without a sense of refreshment. A slight exertion, such as talking for twenty minutes, is followed by a feeling of exhaustion. He can walk ten minutes, but this exercise, or driving, and, still more, riding, gives him a pain in the small of the back and higher up. He has no sexual desire at present; the sexual act used to exhaust him for days or weeks. Erections are frequent, nightly emissions rare. He has been taking phosphorus.

A moderate application of a descending galvanic current to the spine and (by stroking) to the inguinal region, was followed on the evening and night of the same day by considerable nervousness. The next day faradic treatment of the muscles was commenced and continued every other day for six times, when it became necessary to give oxide of zinc to relieve a restlessness and sleeplessness to which he never was subject until within ten days. There was no decided relief to the pain in the back.

Galvanization in the ascending direction, applied to the spine and sympathetic and scrobiculus cordis, was then practiced several times, when for some reason which I do not recall I tested his temperature. On two successive days it stood at $99\frac{1}{4}$ ° at three P. M., and at $99\frac{1}{2}$ ° at eight P. M.; next day 99°. Galvanism was suspended, and in a week his temperature stood at $97\frac{1}{2}$ ° and 98°. I do not know what to say to this phenomenon, but am clear that the patient grew to look somewhat worn and feeble at the close of the treatment, which was not severe. The nervous irritation and sleeplessness continued to trouble him as long as he received electrical treatment, and were not balanced by any good results whatever.

CASE III. *Muscular Rheumatism in a Man aged Thirty-Four, a Gardener.*—Exposure to wet while in the United States cavalry, from 1861 to 1865, caused occasional spasmodic pain in shoulders and neck; since then overwork as a gardener, and afterwards in an occupation requiring him to lift very heavy weights. Pain has always troubled him since the war; it is confined to the muscles, chiefly those of the left arm and right hip, next those of the left hip, left calf, and right arm. Confined to house six months at one time, and for most of the past three months. Great want of muscular power, and flabbiness and atten-

uation of muscular tissue. General health otherwise good. Galvanic currents were applied very thoroughly to the spine and the seats of pain and weakness; improvement was very rapid, and in less than two months he was entirely free from pain and able to go about and make light muscular exertion.

About the same time, however, he became the victim of severe dyspepsia, with pain in the stomach after eating, increase in the axillary temperature, and great prostration of strength. He moved to Maine, and there I learned that he recovered in a short time. The prostration, however, while it lasted, was a little alarming. I am disposed to believe that it was the effect of an over-stimulation of the nervous system by electricity. I have, I think, observed an identical effect in a less degree in a very robust patient with local muscular rheumatism, who was cured of the latter complaint at the expense of a general exhaustion of the system, which was relieved temporarily by cod-liver oil and iodide of iron, and permanently by a change of air.

CASE IV. *Locomotor Ataxia in a Lady aged Forty-Nine, with Weakness, Pain, Twitching, and Numbness in both Legs and Feet, and to some Extent in Arms and Hands.* — The pain was of the usual neuralgic sort. Paralysis of external rectus of left eye. Incoördination marked. She was treated by galvanizing the spinal cord and the legs for two months, and later for a month more. The applications seemed in many cases to give direct relief, followed by an aggravation of the symptoms. Thus the first application, galvanism in interrupted shocks to the loins and muscles of the thigh and leg, gave immediate relief to the weakness, which lasted a day, when the tingling and twitching returned so strongly that the method of application was changed to that of galvanization without interruptions. Again there was a decided sense of increased strength, and again the tingling returned. The relief was so considerable that she was very desirous to continue the treatment; but it is certain that she was worse at the end than when she began, and from the circumstances narrated I believe the electricity did harm.

CASE V. *Muscular Pain and Weakness of Legs, of a Chronic Nature, in a Gentleman of Thirty.* — From boyhood he was very easily fatigued in walking, and often suffered pain afterwards. This he neglected, and for some years past has been a good deal disabled as respects active exertion, although his physical appearance is very good. The muscles are firm, but not so large as they should be; reaction to faradic current very good indeed.

The patient had consulted Weir Mitchell, who considered the case "an example of local tire and fatigue pain, arising out of over-use and precisely analogous to the painful cases of writer's palsy." He advised "an hour a day of systematic massage, an upward galvanic current from coccyx to cervical region of spine, and a daily use of induced cur-

rents applied locally to the muscles" for two or three months at least, with as much rest as possible.

Unfortunately, the patient was living out of town, and was unwilling to think of removing to the city at the time. I applied electricity to the leg muscles three times, in moderate strength, at intervals of three days. Each time the effect was so far injurious that the muscular pain was decidedly increased *on the day after the application*, and the last time it was quite severe, lasting two or three days. In my judgment a case of fatigue pain should be treated by rest in bed, using massage and electricity to keep up muscular nutrition, as taught by Mitchell himself; and the continuance of the daily habits of sitting about and occasionally walking a little or riding to town was totally inconsistent with the use of electrical stimulus in the case of this patient.

In analyzing these cases it seems to me that a general exhaustion, or at least an exhaustion of the spinal forces, furnished the chief element of injury. To this statement an exception is furnished by the first case, in which an attack of local arthritis supervened during electrical treatment. There are other cases in which the expression "local irritation" furnishes a more intelligible explanation of the mischief.

I wish to add to these cases a brief mention of certain other undesirable effects, which were, however, transitory in their nature: —

A very hysterical patient, who was cured of hysterical paralysis by a long and patient continuance in treatment, once went into a slight fit in my presence while undergoing the spinal application of galvanism. This did not occur again; in fact the application as made on that occasion was altogether too harsh.

The group of symptoms which includes giddiness, faintness, nausea or vomiting, disturbance of the circulation or respiration, and excessive drowsiness is familiar to all electrical practitioners. It is commonly thought, and I have been in the habit of saying, that these effects are absolutely to be avoided if possible. And yet I have seen a man suffering from mental fatigue and insomnia relieved to a considerable extent for a fortnight after an application to his head of the induced current, which made him very giddy and sick for five or ten minutes. A patient who had aural disease, with tinnitus and epileptiform attacks of dizziness, received by accident at his first visit an over-dose of galvanism (by local application to the ear). He became giddy and faint, and was unable to work the next day; but on the day following he reported that his tinnitus was gone. Subsequent treatment was quite successful in relieving the latter trouble, and not only so but the attacks of giddiness, which had been frequent, are recorded as absent for a fortnight after that first visit. From such experiences I am led to doubt whether these symptoms are to be regarded as indications that a given application of the current is absolutely doing harm rather than good.

Another effect of too concentrated galvanic currents is the production of superficial eschars, rather slow in healing. It is well to say to those who have had little experience that these may be produced in a few minutes, without any warning pain, in certain patients whose cutaneous perceptions are weakened.

It is undeniable that neuralgic affections are occasionally made worse by electricity. This may sometimes be due to the influence of imagination; sometimes it results from injudicious treatment of nerves while in a state of active congestion; and I suppose it may be caused by a simple excess of electrical stimulation. The latter statement is doubtless true of the muscles.

Benedikt, who treats his subject with a remarkably free hand, uses the following words:—

“The electric current is *contraindicated* in cases where, in spite of all precaution, it is not borne well: for instance, in a few cases of tabes and hysteria, where it provokes violent symptoms of irritation; in cerebral affections when symptoms of congestion appear; in inflammations of the joints in the stage of active congestion, when, in spite of the mildness of the application, the congestion increases, and no immediate relief appears. *An increase of the bad symptoms ought on no account to occur during the electrical treatments.* If it does occur the intensity, etc., must be modified. The so-called ‘crises’ must be abandoned to other pathologists. If bad effects appear in spite of the modification, then the case is either wholly unsuited for treatment, or at least is so for the time being.”¹

“If a patient is insensitive we may usually employ strong currents; we are almost driven to do so by the necessity for satisfying the patient. It is necessary to be very careful about the brain, a region where we can never exceed a certain intensity without incurring a risk; and the same is true of the sympathetic, where it is easy to produce either paralytic symptoms, as unilateral heat in the face and head, and burning pain, or else deep disturbances of nutrition.”²

“A general rule respecting the intensity of the current is that *painful currents are not only unnecessary but as a rule harmful.*³ Almost the only exception to this is the case of hysterical paralysis with hyperesthesia; in these cases either painful currents must be employed, or the treatment must be applied under chloroform. . . . General excitement, convulsions, spasmodic tension of the muscles, giddiness, pain, paralysis, cerebral haemorrhage, bleeding into the lungs or rectum, and severe metrorrhagia are frequent consequences of too painful currents.”⁴

¹ *Electrotherapie*, 1874, page 132.

² Page 135.

³ I may remark that I have cured a supraorbital neuralgia by very painful faradic currents without any bad symptoms.—D. F. L.

⁴ Page 124.

"Loss of teeth and blindness (Duchenne) are also symptoms which may result from too powerful electrical irritation of the face and head. . . . All these symptoms are no phantoms of *doctrinaire* imagination, but facts drawn from experience."

The somewhat violent symptoms which Benedikt ascribes to the effects of painful currents are largely due (as the reader will observe) to the very great effect which such applications may have upon the vaso-motor system. All kinds of electrical applications, however, are capable of influencing with great power the vaso-motor and secretory functions, and are more or less valuable as therapeutic agents in affections of these functions.

In concluding these brief notices, let me remark that, as far as I am able to judge, the harm that may be done by electricity mostly arises from the effects of over-stimulation, that is, exhaustion of the spinal or ganglionic systems.

A CASE OF ADDISON'S DISEASE.¹

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In an article on this disease published in *The American Journal of the Medical Sciences* for January, 1877, Dr. William Pepper states that only ten cases of Addison's disease are quoted from American sources in Greenhow's tables. I therefore desire to put on record the only case I have met with, although the notes are not so full as could be wished. The family attendant, an eclectic physician, now dead, kindly furnished me with an account of the symptoms noted before death.

On the 8th of August, 1869, I was asked to make an autopsy of Ida S., aged seventeen years, who died the day before. Her mother says that the patient's menses have been regular since she was thirteen years old. Her complexion began to grow dark a year before; others of the family think this date is placed too far back, but Mrs. S. insists that twelve months have passed since the change was noted. The girl's general health began at that time to fail, but so insidiously that she was not considered ill till five months previously. Just before that time I saw her while attending her grandfather for a railroad accident which proved fatal, but only noticed that she was darker than the rest of the family, and was not asked for advice. Early in March she showed a dark circle around the neck, which was supposed to be caused by some article of dress, and the discoloration began to be observed by others beside her mother. Along with this she began to be puffy under the eyelids in the morning, was easily fatigued and rendered breathless, had frequent nausea and vomiting, headache, backache, and "sideache."

¹ Read to the Dorchester Medical Club.

Her appetite became capricious, with craving for salt and acids ; the bowels were generally constipated, with occasional diarrhoea, languor, and sleepiness, and latterly hiccough. She had been up and about the house during this illness, and only a week before her death she walked out. It was not till the 3d of August that this practitioner was called to see her ; he was surprised by the discoloration of the skin, which was of the hue of a mulatto over the whole body, deepening almost to black in the folds of joints. She had pain and great tenderness in the lumbar region, increased by pressure ; the menses were present. The next day vomiting set in, and continued till three o'clock in the morning of the 6th, with relief to the pain in the back ; an enema produced a copious natural discharge. The thirst was insatiable. No tenderness of the epigastrium was observed, but great distress and distention before a fit of vomiting, which relieved it. There was no headache, but slight delirium ; no convulsions ; the breathing occasionally was stertorous. Twelve ounces of urine were passed, the constituents of which are not recorded. The region of the liver was flattened, not tender. Exhalations from the skin were foetid, a very bad odor being constantly in the room ; there were no haemorrhages.

August 6th. The vomiting, stopping at three A. M., recommenced at five, with constant nausea.

August 7th, eight A. M. Nausea ceased during the night, and the patient said she felt better ; tongue partly cleaned ; skin mottled and streaked. Slight trismus was noticed while her mouth was washed with cold water ; the conjunctivæ were congested ; there was slight delirium. Died at ten o'clock A. M.

Autopsy, August 8th, at 8.30 P. M., by Dr. Stedman. Color that of a light mulatto, having cleared very much since death. Body slight, but not emaciated. Lips livid, as if she had been eating mulberries. Mammary development very large for a young American girl ; areola almost black, and shining cracks in the skin of the breasts ; nipples very small and undeveloped ; otherwise the appearance of the breasts would have suggested pregnancy. Head not opened. Heart small and flabby, not fatty. Lungs crepitant throughout, but firmly glued to costal pleure and diaphragm by old adhesions. Stomach large and its walls thin. The coats of the intestines thin ; abdominal glands somewhat enlarged. Liver enlarged, flabby ; the right lobe looking fatty, adherent by its lower surface, requiring dissection to free it ; in doing this an abscess was cut into on either side ; these were seated in the supra-renal capsules, which adhered to the liver, were of firm texture, and the size of a man's thumb ; a cavity existed in each, holding a drachm of pus-like fluid, and the remaining substance looked like broken-down caseous matter. The uterus slightly anteflexed and virginal. Other organs were examined and found normal.

RECENT PROGRESS IN OPHTHALMOLOGY.¹

BY O. F. WADSWORTH, M. D.

Tuberculosis of the Conjunctiva. — Walb² observed tuberculosis of the conjunctiva in a child one and a half years old. The child fell and struck the left eye against a sharp corner, causing bleeding and swelling of the lids. The swelling passed off in the course of a week, but later the upper lid became thickened. Eight weeks after the injury there was vascular, uneven thickening of the conjunctiva of the upper lid, in which small, round, yellowish-white spots could be seen, and caseous ulceration near the outer commissure. The skin was sound, but a linear cicatrix could be felt in the tarsus. The lower lid conjunctiva was congested, and in it also were numerous lighter points. Near the left ear was a bunch of swollen, fluctuating glands, which had made its appearance after the conjunctival disease. Examination of a portion of the thickened conjunctiva showed a highly vascular connective-tissue growth in which typical miliary tubercles were imbedded. Under the use of caustics the whole disease regressed, and cicatricial shrinking took place.

There was here, according to Walb, from the original injury rupture of tarsus and conjunctiva without wound of the skin. The tarsus cicatrized, but the granulations in the conjunctival wound were invaded, under the influence of a constitutional predisposition, by miliary tubercles. This changed the character of the growth; the connective-tissue proliferation involved the surrounding healthy tissues, miliary tubercles developed with it, and in one place their degeneration gave rise to superficial ulceration. Development of tubercles also occurred in the lower lid, not in direct connection with the original affection, and the swollen glands near the ear showed that the neighboring lymph-vessels were infected.

Choroiditis Tuberculosa. — The disease formerly described as choroiditis tuberculosa is now admitted not to have been a tuberculosis, but a metastatic purulent choroiditis. In recent years numerous observations of miliary tubercles in the choroid as an accompaniment of general miliary tuberculosis have been published, but very few of tuberculous choroiditis (Manfredi, Poncet). The following case, in which Hirschberg³ had opportunity to make ophthalmoscopic examination, is therefore of special interest.

A man of twenty-seven years, sick with fever and headache, had suffered from a painful inflammation of the left eye for sixteen days. The right eye was normal. The left eye was a little pushed for-

¹ Concluded from page 450.

² Klinische Monatsblatt für Augenheilkunde, August, 1877.

³ Centralblatt für pract. Augenheilkunde, February, 1877.

ward, its movements good, the bulbar conjunctiva much swollen and congested, the media clear, except for a slight haziness of the cornea, and some remains of exudation at the edge of the pupil, which was circular and dilated by atropine. The appearance of the fundus was a very uncommon one. The outline of the papilla could not be made out; the retinal veins were excessively enlarged and winding, here and there accompanied by haemorrhages. The greater part of the fundus which could be seen presented a diffuse, intense white coloration, evidently more from infiltration of the choroid than of the retina, whose vessels ran in front of the white infiltration. The eye was nearly blind. A few days later the chemosis was less, the retinal veins less swollen, and fingers could be counted upward. The improvement did not last; the man died, and at the autopsy was found a tubercular meningitis. Examination of the eye, by Dr. Weiss, showed an inflammatory infiltration of the choroid, spreading outward from the papilla, eight mm. in extent and three mm. in maximum thickness, in which were scattered tubercles, partly caseous.

Hirschberg calls attention to these differences between the above case and the miliary tubercles in the choroid; the latter occur with general tuberculosis; in this instance there was a local tubercular affection. The latter develop without manifest disturbance of vision or externally visible changes in the eye; in this case there was blindness, chemosis, and iritis. The latter may be seen with the ophthalmoscope as small, whitish, round spots, generally less than one mm. in diameter, with scarce other change in the fundus; here the papilla was wholly effaced, the greater part of the fundus, so far as it was visible, diffusely white, the veins were enormously enlarged, and there were retinal haemorrhages.

The Retina in Pernicious Anaemia. — Litten¹ states as the result of his observations that the retinal haemorrhages in pernicious anaemia present varying ophthalmoscopic appearances. They occur singly or scattered over the whole retina, are more frequently present near the papilla than the macula lutea, either accompany or have no visible connection with the vessels, and assume the most various shapes. According to their age they may vary in color from a light red to a dark brown.

To determine the pathognomonic value of these haemorrhages a series of nine individuals, anaemic from different causes, were examined. Of these, three were cases of pernicious anaemia without known cause, one of uterine haemorrhage from carcinoma uteri, two of metrorrhagia after abortion, three of haematemesis. The first four were fatal, the other five recovered. In seven of the nine cases there were multiple haemorrhages in the retina; one of the cases without retinal haemorrhage was of pernicious anaemia, one of haematemesis. It follows, there-

¹ Berliner klin. Wochenschrift, 19 and 20, 1877.

fore, that the haemorrhages are dependent rather on the anaemic condition than upon any special form of anaemia, and certainly cannot be regarded as a safe diagnostic symptom of pernicious anaemia.

The light-colored spots in the midst of the haemorrhages, which have been described by many writers, have no greater diagnostic importance than the haemorrhages themselves. They were seen in some or all the haemorrhages in each of the above seven cases, and have been found also in quite other affections. They depend on different pathological changes, however, according as they appear at the same time as the haemorrhages or only at a later period. In the former case they are caused by an agglomeration of small, round cells which is in immediate contact with the red corpuscles of the haemorrhage; in the latter they depend on regressive metamorphosis in the blood clot.

Concerning the origin of the heaps of round cells Litten does not agree with Manz.¹ The latter found these cell-heaps surrounded by a fibrous sheath, and also dilatations in the walls of the capillary vessels. Hence he regarded the haemorrhages as analogous to capillary apoplexies in the brain. Litten is disposed to believe the appearances seen by Manz exceptional, and due to the formation of white thrombi in the capillary diverticula described. In four eyes which he examined he was unable to discover such, or any, changes in the vessel walls, or any sheaths around collections of white cells, and regards these collections of white cells surrounded by red corpuscles as the result of diapedesis. Nykamp² also found in the retina from a case of pernicious anaemia the walls of the blood-vessels generally intact, and decided evidences of diapedesis.

But not all the haemorrhages are the result of diapedesis. The microscopic examination of haemorrhages in which whitish centres had been seen to appear some time after the occurrence of the haemorrhages showed the centres to consist of tissues in process of fatty degeneration. Here rupture of vessels is assumed, since diapedesis does not destroy the tissues, though even then no rupture of vessels was discovered.

In three cases of anaemia — one fatal, two recovering — Litten observed irregular whitish patches of various size, which, when situated over the larger vessels, hid without interrupting them. These patches after a time faded and disappeared, while, often within a period of twelve hours, others developed. They differed from the white patches in Bright's disease, in being less brilliant and less dense. No explanation of their nature is offered; nothing positive was found in the fresh retina of the fatal case, but there was evidently no fatty degeneration. They caused no marked disturbance of vision.

The peculiar light red color of the fundus and retinal vessels and

¹ Centralbl. für die med. Wiss., 1875.

² Berliner klin. Wochenschrift, 9, 1877.

exceptional pallor of the papilla appear to be constantly present in pernicious anaemia.

Drainage of the Eye.—Von Wecker,¹ starting upon the supposition that glaucoma, in the great majority of cases at least, is caused by diminished excretion rather than increased secretion, and that the efficacy of iridectomy or sclerotomy is due to the formation of a cicatrix which allows filtration, conceived the idea that the establishment of drainage through the ocular tunics might be still more effectual. In his first communication he stated that he had convinced himself that a loop of gold wire through the coats of the eye decreased the intraocular pressure much more, and caused cessation of glaucomatous symptoms sooner, than did the excision of a portion of iris. He did not propose, however, to substitute drainage for iridectomy in glaucoma as a general method. The new operation was to be performed only in cases where the performance of iridectomy was very difficult or dangerous, or failed in effect, in absolute glaucoma with great pain, haemorrhagic glaucoma, and when the removal of a broad portion of iris did not diminish the tension. The drainage is effected by the introduction of a loop of fine gold wire through sclera or edge of cornea by means of a hollow, curved needle, the ends of the wire being twisted together after withdrawal of the needle, so as to lie closely upon the portion of tissue included in the loop.

From the theses of two of Von Wecker's pupils² and the report of Massilon,³ his *chef de clinique*, for 1876 it appears that drainage has been employed a large number of times, and its application has been extended from glaucoma to separation of the retina and of the choroid, hydrophthalmos, staphyloma, kerato-globus, and opacity of the cornea. Of the results in cases of separation of the retina it is said that drainage has almost always modified the disease and sometimes produced a rapid and sensible amelioration, but it is added that the treatment is yet too recent to make it possible to say what may eventually become of the eyes thus treated. It is to be remarked, also, that although the operation is spoken of as producing no injury, it was necessary in some cases to remove the wire on account of symptoms of inflammation.

Cohn⁴ employed Von Wecker's method of drainage in four highly myopic eyes affected with separation of the retina. He found the wire produced no irritation, though the patients returned to their usual occupations after from three to ten days with the wire in place. The separation was always either immediately completely relieved or diminished, but after a longer or shorter time recurred, spite of the retention

¹ Archiv für Ophthalmologie, xxii, 4; Monatsbl. für Augenheilkunde, March, 1877.

² Ribard. *Drainage de l'Œil*, etc. Paris. 1876. Grisou. *De Drainage de l'Œil*. Paris. 1877.

³ Annales d'Oculistique, March and April, 1877.

⁴ Centralbl. für pract. Augenheilkunde, August, 1877.

of the wire. With the replacement of the separation the field of vision was restored, but any color-blindness produced by the separation remained, nor was the decreased perception of light improved.

Latterly Von Wecker¹ has substituted for the gold wire a single or double thread of catgut which has been first soaked in carbolated oil, then freed from the oil by ether. The catgut is thrown off after three or four days in children, after six or seven days in adults, leaving distended cicatrices at the points of entrance and exit of the loop, which permit an active filtration.

Do the Usual Solutions of Eserine or Atropine have an Antiseptic Action? — Von Wecker's idea that eserine solution has an antiseptic action has not been borne out by the experiments Schmidt-Rimpler² made to determine this point. The inoculation of the cornea of rabbits with blennorrhœal secretion from the lachrymal sac was found as a rule to excite a specific inflammation in that membrane, but this effect was not produced when such secretion had before inoculation been allowed to remain some time (twenty to fifty minutes) in chlorine water or solution of carbolic or salicylic acid, etc. When, however, the secretion had remained a like period in a one half per cent. solution of eserine or atropine the result of the inoculation was indeed diminished in intensity, as would naturally be expected from the dilution it had experienced, but its specific septic action was unquestionable. There was, moreover, no difference to be detected in the influence exerted by the solutions of the two substances.

Serous Subconjunctival Cyst. — A case reported by Laqueur³ is interesting on account of its rarity, if for no other reason. The cyst was situated in the middle of the retro-tarsal fold of the lower lid in a young woman of twenty-one years, was somewhat larger than a pea, and had developed gradually within two months, without pain. It lay more under the palpebral than bulbar conjunctiva, was very superficial at its central part, and contained a watery fluid. There was no history of injury. By careful manipulation it was removed whole. Examination by Recklinghausen showed that the cyst wall was everywhere distinct from the conjunctiva, but loosely connected with the surrounding tissues, consisted of a fibrillary connective tissue in which blood-vessels ramified, and was lined by a single layer of flattened epithelial cells.

¹ Gazette des Hôpitaux, June 28, 1877.

² Klinische Monatsbl. für Augenheilkunde, April, 1877.

³ Klinische Monatsbl. für Augenheilkunde, June, 1877.

PROCEEDINGS OF THE MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

OCTOBER 10, 1877. DR. NICHOLS read a careful report of "an obscure case," which is reserved for publication in the JOURNAL.

DR. E. CUTTER read a paper upon Diet in Disease, in which he urged the insufficiency of starchy diet in exhausting diseases, and the importance of nitrogenous food. He supported his scheme by a variety of cases, including enteric and other fevers, and deficient lactation, urging the need of practical experiments in this direction.

DR. A. MASON, having recently returned from California, made some remarks, by invitation, upon the climate of California, especially of Santa Barbara, with other circumstances of surroundings, etc., affecting invalids. Rheumatic cases, he thought, are unfavorably affected by the climate. He distributed copies of a tabular statement of variations in temperature, moisture, etc., prepared by a resident physician of Santa Barbara, and embracing a period of several years.

The secretary read the following communication from the board of censors: —

CAMBRIDGE, MASS., October 10, 1877.

TO THE MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

GENTLEMEN, — Your board of censors has received a letter from Miss Eliza M. Mosher, requesting examination as a candidate for admission to the Massachusetts Medical Society. She states that she is a graduate in medicine from the University of Michigan, a member of a county society of the State of New York, and has recently been appointed resident physician to the State Reformatory Prison for Women at South Framingham.

By a vote of the councilors, passed in 1873, the censors are not allowed to admit a woman to examination for admission to the society. We have therefore instructed our secretary so to inform Miss Mosher.

Believing, however, as we do, that the exclusion of properly educated women from our professional ranks does not tend to advance the progress of medicine, we desire respectfully to suggest to the society that the councilors of the district be instructed to bring this matter again before the parent society, and to use all proper efforts to secure for women applying for admission to the Massachusetts Medical Society the same privileges that men enjoy.

(Signed)

J. L. HILDRETH.

E. H. STEVENS.

W. P. GIDDINGS.

[Copy.]

The following resolutions were passed with very few dissenting voices. Fifty-three members were present.

"Resolved, That in the opinion of this society the time has come when women should have the privilege of examination by any board of censors acting for the Massachusetts Medical Society.

"Resolved, That it is the desire of this society that well-qualified female

practitioners shall, after examination, be admitted to the Massachusetts Medical Society.

"*Resolved*, That the councilors of this society be instructed to communicate these resolves at the next meeting of the councilors of the Massachusetts Medical Society."

THE AMERICAN PUBLIC HEALTH ASSOCIATION.¹

THE third volume of the transactions of this association, comprising principally the proceedings at the meeting in this city a year ago, has just been issued from the Riverside Press. Although it is less in size than its predecessors, the quality of the work which it records does not appear to have depreciated. There is the same variety of researches, the same manifest vigor, the same comprehensiveness of plan, which has characterized the former endeavors of this association. Originality of observation is less apparent in the work of this body than in that of more exactly scientific societies; but the knowledge already attained, the experience of men expert in various directions, are set forth in their application to the present needs of public hygiene, so that in the adaptation of its purpose to practical and reformatory ends the association has the advantage of showing in the main something tangible in the place of fine and impracticable theories. These reports thus become valuable, not to a narrow and exclusive circle of readers, but to all who have any interest in personal and public health,—a class which we believe to be large and steadily increasing.

The book opens auspiciously with a discourse by Dr. Austin Flint, upon Food. In this discourse, Dr. Flint endeavors to correct many false popular notions about alimentation, errors mostly hereditary and founded on bad theories. He shows that not only do we eat to live but that in a certain sense we live to eat. He proves the fallaciousness of diet tables, founded upon averages, as a standard for individual use. He has a good word for milk as an article of food,—"that precious form of food which has this superiority over other forms, namely, it embraces all the alimentary principles combined in exact relative proportions by the hand of Providence." He deprecates the popular belief that most diseases arise from overeating, and as between excess and deficiency in eating would choose the former even if it were called gluttony. He quotes the remark of an old physician who, at ninety years of age, was asked to what he attributed his longevity and vigor, and replied, "I know of no other reason than this: I have always eaten when I wanted to eat, and as much as I wanted, and the best I could get." In the matter of infants' food, he says he would "warn parents not to accept for infantile life any article of food other than milk. Do not be led astray even by the name of Liebig, nor by the recommendations of personages be they never so distinguished." The entire paper is exceedingly fascinating, as those who had the pleasure of hearing its delivery by its distinguished author can bear witness.

¹ *Public Health Reports and Papers.* Volume III. Presented at the Meetings of the American Public Health Association in the years 1875-1876. New York: Published by Hurd and Houghton; the Riverside Press, Cambridge. 1877.

An article on Expert Testimony would seem at first view to be in strange company in the transactions of a sanitary association. But it is not out of place; indeed, it is in its most appropriate connection. The medical expert and the medical officer of health are the two exponents of medicine in its public relations; they represent "public medicine" or "state medicine." Though not fully recognized at the present day, the association of public hygiene and medical jurisprudence is both natural and harmonious. So that we are glad to see in this volume a paper on expert testimony by an authority so distinguished as the late Professor Emory Washburn. After defining the true scope and purpose of expert testimony, its limitations and requirements, the author shows how difficult and well-nigh impossible it is under the present system of summoning expert witnesses to divest the testimony of such witnesses of a partisan character and to avoid the disagreeable and often demoralizing concomitants of such a method. To improve the prevailing system, the author proposes the following: "To have the court before which the trial is to take place select a proper number of experts of an established reputation, after a proper hearing of the parties, and to have these called; while the parties may still be at liberty to call others if they see fit." Such a recommendation possesses very obvious advantages, and if carried out would banish many of the gross and scandalous evils of which medical experts with good reason complain. Under such improved conditions, the witness-stand would no longer be a place of torture for physicians.

Professor Wood, of Harvard University, has an article on Illuminating Gas in its sanitary relations. The article is especially emphatic in its treatment of the subject of water gas, a mixture of hydrogen and carbonic oxide. The proposition to use this gas for heating purposes should be strenuously opposed, the author maintains, on account of the large amount of the dangerous carbonic oxide element in its composition; when petroleum is added to the water gas to fit it for illuminating purposes, the danger in the use of the odorless non-luminous mixture is diminished.

Naval hygiene is treated in interesting papers by Drs. Woodworth, Gibon, and Bell. If we may trust these writers, sanitary zeal will not need to seek far to find new fields for its exercise, when all things are set right in town and country; the records show that an average of seventeen thousand seamen annually become disabled in their vocation, "the result," says the supervising surgeon-general, "of the food the sailor eats, the clothes he wears, the hole he sleeps in, and the excesses these conditions naturally and inevitably drive him to."

The subject of the hygiene of dwelling-houses is generously treated in six articles by well-known writers. In the interest of scientific exactness of observation which hygiene requires equally with other departments of research, we must find fault with the following in Colonel Waring's paper: "I was recently told of a household in New York which had for years been a reliable source of income to its attending physician. After his death, a younger doctor, an enthusiastic sanitarian, who succeeded him, soon became convinced that the illness which had so long prevailed was due to emanations from the drainage pipes of the house. Plumbers were employed to make a thorough inspec-

tion, and they reported everything in perfect order. The cases of disease kept coming, and an inspector from the Board of Health examined the house, finding no defect. The character of the recurring ailments indicated so clearly a foul-drainage cause, and no other, that the physician finally applied himself to a minute inspection of every part of the work. On the waste-pipe under a wash-basin he detected a very slight oozing of moisture, so slight that he did not feel sure that it existed until he found that it moistened tissue-paper laid over the spot. The most rigid scrutiny developed no other leak. This pipe was taken out and a new one substituted, and, although he or his predecessor had been called to attend some member of this family almost weekly for a dozen years before, he was not called again for eighteen months, and then only because of the stock." What a far-sighted young physician, and what a small hole!

Dr. Elisha Harris utters a good word in behalf of general vaccination, and points out the practical measures which should be put into operation to secure the best and largest results in this country.

Mr. C. T. Lewis contributes a paper in which he argues that civilization exerts a favorable influence upon longevity; that, in modern times, infant life is more fully protected; that the care of the sick, infirm, and aged has substantially improved; that fatal epidemics are more infrequent; and that knowledge of the laws of health and the practical application of them are steadily promoting long life. The hypothesis of the survival of the fittest in its adaptation to the development of the human race is not acceptable to the author; and incidentally, he pays his respects to the dismal pessimism which found expression in "an unsavory discussion two or three years ago — echoes of which are still sometimes heard from the lecture desk or the press — on the rapid tendency of Massachusetts to relapse into barbarism, from the decline in numbers of the native-born and intelligent people before the multiplying vitality of the ignorant classes."

PROFESSOR HITCHCOCK ON PHYSICAL EDUCATION.

THE paper read on this subject at the recent meeting of the Public Health Association furnishes food for much thought. This may at first sight appear a compliment, but it will prove to be a criticism. We approve heartily of physical exercise; we think its neglect has done great harm to the present generation, and are glad to see that more attention is now paid to it. So if we criticise Professor Hitchcock severely it is not that we are opposed to physical education, but simply to his method and the manner in which he advocates it. The paper describes the plan pursued at Amherst. The professor begins with an account of the gymnasium, and gives at full length the verbose, goody-goody inscription that is painted on the walls. To us it is disgusting; and we have no doubt is a subject of mirth and derision to ten students for every one to whom it is edifying. The duties of the professor of the department of physical education and hygiene are as follows:—

"First, to take charge of the gymnasium and give instruction to the stu-

dents in gymnastics. Second, to take a general oversight of the health of the students, and to give such instruction on the subject as may be deemed expedient, according to the general plan stated by the president in his report, and under the direction of the faculty, like all the other studies. Third, to teach elocution so far as it is connected with physical training. Fourth, he shall give lectures from time to time upon hygiene, physical culture, and other topics pertaining to the laws of life and health, including some general knowledge of anatomy and physiology. Fifth, the individual appointed to have charge of this department shall be a thoroughly educated physician, and, like other teachers and professors, shall be a member of the college faculty. It is distinctly understood that *the health of the students* shall at all times be an object of his special watch, care, and counsel."

A feature which we especially dislike is the popular treatment of human anatomy and physiology. To be just, we give the plan in Professor Hitchcock's own words: "The anatomy and physiology which is technical or professional is not offered to the student, but only such knowledge as may be gained by a tolerable acquaintance with the skeleton, the manikin, and most of the enlarged papier-maché models of Ausoux." Knowledge of this kind is of little value, and develops, if anything, either hypochondriasis or conceit, sometimes both.

But let us return to the gymnasium and see what these obligatory exercises amount to. Each class attends four times a week for half an hour. The exercises consist of series of movements with light dumb-bells, together with marching and running. We find, however, that this drill continues only fifteen or twenty minutes, and that the remainder of the half hour is spent in voluntary exercises, which are sufficiently varied, as the report shows: "Some use the heavy apparatus—about one in eight—or take a longer run; others dance, use clubs, sing, pull rope, toss in the blanket, turn somersaults, and occupy themselves in any proper manner to secure exercise, sport, or recreation."

We cannot forbear quoting the following passage, though it is hardly medical, because it shows so thoroughly what we must call the canting style which characterizes the whole report:—

"The military method, though a little used, is not sought after. It seems idle to talk about military rules and life where there is no military authority to carry out the regulations. Were the college a state or government institution, a military department would be in place and possibly sustained and prospered. But to talk about military rules and methods without the authority of the ball and chain, the guard-house, or power of life and death in the officer, seems worse than idle. College students will generally chafe under that rule which degrades them from the agents of free will and choice to a mere live machine, except when 'the country calls.'"

Talk of this kind takes in the country, but it is hard to see why grown men waving wooden dumb-bells at the command of an instructor are not equally degraded with those who are learning the manual. We know which would be the most useful when "the country calls." Do West Point officers have power of life and death?

We have not space to follow Professor Hitchcock through the account he

[October 25,

gives of the health of the students, the physical statistics, religious influence, and what not that he implies flows from the obligatory drill of from sixty to eighty minutes a week, with the supplementary singing, dancing, and turning somersaults ; we think we have said enough to give a fair idea of the paper. We hope we shall not be misunderstood. We approve of physical exercise, and we would encourage the gymnasium, and still more out-door sports, but we think that Professor Hitchcock claims far too much for the little he does. He, too, rides a hobby, and his is not a particularly "square trotter."

THE WOMAN QUESTION.

THE Middlesex South District branch of our state society has made a mistake in bringing up this vexed question. Haste is out of place, for there is nothing to gain and something to lose by it. We are to consider simply the good of the profession and of society ; respectable female practitioners do not as yet constitute a sufficiently large class to demand notice on their own account. Before any innovation should be accepted it must be shown that it is good and that it is needed ; when this is done it will succeed with little effort ; till this is done its success is not to be desired. There are, no doubt, hundreds of women holding the medical degrees of more or less sham "universities" from Boston to Texas, but the number of excellent female practitioners in America whom a society might be proud of could be counted on the fingers of one hand ; indeed, it would puzzle us to name so many. The time for action has not arrived. We know nothing of the lady whose application for admission is the cause of this discussion, but we may be permitted to say that there is no apparent reason to believe that she is of such exceptional attainments that the Massachusetts Medical Society should feel called upon to modify its laws on her account.

MEDICAL NOTES.

— An army medical board will be convened in New York city early in November, for the examination of applicants for appointment as assistant surgeon of the United States army. The following will be the general plan of the examination : —

I. A short essay, either autobiographical or upon some professional subject, to be indicated by the board.

II. Physical examination. This will be rigid, and each candidate will in addition be required to certify "*that he labors under no mental or physical infirmity, nor disability of any kind, which can in any way interfere with the most efficient discharge of his duties in any climate.*"

III. Oral examination on subjects of preliminary education, general literature, and general science. The candidate must satisfy the board in this examination that he possesses a thorough knowledge of the branches taught in the primary schools, and a failure to show this will end his examination.

Oral examination on scientific subjects will include chemistry and natural

philosophy; and that on literary subjects will include English literature, history of the United States, and general history,—ancient and modern. Candidates possessing a knowledge of the higher mathematics, the ancient and modern languages, will be examined therein, and due credit given for a proficiency in any or all of these subjects.

IV. Written examination on anatomy, physiology, surgery, practice of medicine and general pathology, obstetrics, and diseases of women and children. Oral examination on these subjects, and also on medical jurisprudence, *materia medica*, therapeutics, pharmacy, toxicology, and hygiene. Few candidates pay the attention to hygiene which it deserves; it is made an important subject in this examination.

V. Clinical examination, medical and surgical, in a hospital.

VI. Performance of surgical operations on the cadaver.

— A successful English pedestrian has lately paid the penalty of unreasonable exertion. The victim, Hunter, undertook to walk one hundred and sixty miles in forty-eight hours, and accomplished the feat with thirty-five minutes to spare, but the next afternoon, while in bed, he was found to be ill, and he soon died, apparently from disease of the heart.

— We copy from the *Medical Examiner* the following account of the case of Mademoiselle Titiens, the celebrated singer, who died on October 3d: "Two years and a half ago she had symptoms of obstruction of the bowels at Brighton, and on Dr. Howell's arrival a femoral hernia was found on the left side. This was reduced, and Mademoiselle Titiens was left in a satisfactory state; but a few days afterwards sickness returned, and with it abdominal pain. A careful examination discovered a fibroid tumor attached to the base of the retroverted uterus, the cervix uteri being pressed against the pubis. The tumor was pushed up into the pelvis, and the patient was relieved. The same accident occurred on three other occasions, the tumor each time being pushed up into the pelvis after a few day's rest. Mademoiselle Titiens noticed last April that the abdomen was increasing in size, and that there was some ascites. Mr. Spencer Wells then saw her with Dr. Howell. Diuretics were tried, but the kidneys ceased to secrete, the bowels would not answer to aperients, and vomiting ensued. The patient was then seen by Sir William Jenner and Mr. Spencer Wells with Dr. Howell, and it was determined to tap the abdomen. This was done by Mr. Wells, and sixteen pints of fluid escaped. The omentum was thickened, hard, and attached to the abdominal walls by strong adhesions. The fluid was examined microscopically, and it was found to contain large cordate, irregular, and mother cells. Shortly after the operation the patient was tapped again, and twenty-five pints were withdrawn. A month later twenty-one pints were evacuated, a month afterwards sixteen pints, and a fortnight later fourteen pints. The solid mass, which is now considered to have been of a sarcomatous character, steadily increased during the whole period, and at the time of death probably weighed sixteen to eighteen pounds. Sir James Paget and Dr. Wilson Fox saw the patient in the latter part of her illness, and the case ran the usual course, with sickness, acute pain, and comparative temporary relief after the tapping. During the last two months that Mademoiselle Titiens resided at Worthing, general dropy

of the lower extremities supervened. The kidneys acted fully after the tapping, but the secretion gradually and progressively diminished after each operation up to the time when the operation again became necessary."

— Anno Domini 1877, Timothy Holmes, F. R. C. S., surgeon to and lecturer on surgery at St. George's Hospital, in a clinical lecture on the treatment of strangulated hernia, says: "Taxis is very much more assisted by chloroform than by ether. I do not myself recognize that very great difference in the danger of anaesthesia from chloroform and from ether which some surgeons profess to feel. It seems to me that complete surgical anaesthesia is always a dangerous thing, whether produced by chloroform or ether; and I think chloroform produces so much more complete relaxation, and that so much more speedily, that it is very much more convenient in the reduction of dislocations and strangulated hernia."

— *The Philadelphia Medical Times* for September 29, 1877, states that at the Centennial Exhibition there was an enormous percentage of sickness among the Japanese exhibitors, due partly to the change in their mode of life and climatic surroundings, and largely to their mode of living. Their dwellings were so slightly built as to afford but little protection from cold, and in cold weather their rooms were unventilated. Eighteen per cent. of them suffered from typhoid fever. At the Centennial Hospital 6463 cases of disease and injury were treated. Although there were acres of moving machinery, and the steam railway carried around the grounds 3,784,142 passengers, there was no serious accident. There were only four deaths upon the grounds, no births, and but one abortion. "These facts furnish strong proof of the admirable management of the Centennial authorities, of the modesty which keeps the American woman secluded during the later months of pregnancy, and of her retentiveness during the earlier days of her sorrow."

— A process has been invented in England by which condemned meat may be deodorized, rendered disgusting to the taste and offensive to the eye. It is put into a bath with the result that at the end of a fortnight the meat smells perfectly sweet, is dyed a deep yellow color, and is made very unpalatable. Recently four tons of meat were submitted to this process, and its object was fully accomplished. After the meat has been taken from the bath it is used for manure.

— *The Showering Tree.* The consul of the United States of Columbia in the department of Loreto, says *L'Union médicale*, has just written to President Prado, giving some curious details concerning a tree which grows in the forests in the neighborhood of the town of Magobamba. This tree, called by the natives *Tamai copsi* (*arbre à pluie*), is possessed of remarkable properties. It is some eighteen metres in height when it has attained its full growth, and the diameter of the base of its trunk is about one metre. The tree absorbs and condenses with astonishing rapidity the moisture of the atmosphere, and water is seen to trickle continually from its trunk and to fall like rain from its branches, and in such abundance as to transform the soil about it into a veritable marsh. The tree possesses this property in its highest degree during the season of the year when the rivers are low and water is scarce; so that the consul of Loreto proposes to plant the tree in the arid regions of Peru for the benefit of agriculturists.

HOSPITAL REPORT.¹

CLINICAL SERVICE OF DR. WM. PEPPER,

Professor of Clinical Medicine in the University of Pennsylvania Medical School.

Treatment of Typhoid Fever. — Beginning with the second week of the disease, when the abdominal symptoms of pain and diarrhoea have fully set in, one quarter of a grain of nitrate of silver with one twelfth of a grain of belladonna, and from one sixth to one half of a grain of the watery extract of opium, are exhibited in pill form three times a day after meals. Under this treatment diarrhoea and tenderness have diminished, and patients have made very rapid recoveries. In most cases very little stimulus is used. Milk and beef tea are the only articles of food allowed. Quinia is given with other tonics. Fever is reduced by frequent spongings of the skin of the entire body. When the high fever resists sponging, cool baths are employed. Indiscriminate bathing in typhoid fever is often extremely injurious. The best time for the use of the cold bath is in the early stage, during the first week or ten days, in cases where the temperature rises above 103°, and is not controlled by frequent spongings, large doses of quinia (quinia acts most admirably both in this and other diseases as an antiphlogistic), diaphoretics, etc. When the fever in subsequent stages runs high, it is of the nature of a sympathetic fever, largely dependent on the amount of intestinal lesion; hence cold baths are less valuable at that time and attended with more risk. Nitrate of silver is used both with the hope of limiting the amount of the specific follicular catarrh of the intestines, and with the intention of favorably modifying the secondary sympathetic symptoms. The very best results are also obtained by the continuous use of nitrate of silver in chronic inflammation of the bowels and in gastric ulcer. The nitrate is given in doses of a third of a grain a couple of hours after meals. Dr. Pepper has cured *thirty-nine* out of the *forty* cases of typhoid fever in which it has been employed, by this nitrate of silver treatment.

Goitre. — A great number of cases of this affection have applied for treatment here within the past year. The majority of the cases have occurred in women, and have been intimately connected with some uterine trouble. The successful mode of treatment is by hypodermic injections, of from six to ten minimis of a solution containing ninety-six grains of ergotine to the ounce of distilled water, well into the substance of the enlarged thyroid gland. The injection is repeated two or three times a week for the space of from four to six months, when the gland becomes thoroughly hardened. It begins to shrivel with the stoppage of the injections, and very soon returns to its normal size. Ergotine is of no value in bronchocele, but only in cases of simple enlargement of the thyroid gland. The injection is attended with very little pain, and this is generally local or referable to the origin of the sterno-cleido mastoid muscle. Injections of ergotine have also been made locally in both tonsillitis and adenitis, with good results.

¹ Reported for The Medical and Surgical Journal.

Chronic Dysentery. — There have lately been two well-marked cases of this disease in the medical wards. In the first case the treatment was by the late Professor Simon's proposed method, by "gravity injection." The Simon apparatus is very simple, consisting of an ordinary funnel with an elastic tube attached, some six or eight feet in length. The liquid to be injected is poured into the funnel. The height at which the funnel should be held depends upon the amount of resistance to be overcome and the quantity of the injection. In this case a solution of nitrate of silver, varying in strength from eight to fifteen grains to the quart of water, was introduced into the bowel. At first a pint, and later a quart of the solution was injected once or twice daily; afterwards once in two days. The injection was retained for from five to ten minutes. Its retention gave no pain with the exception of a slight burning sensation when the stronger solution was injected. The stools became formed and less bloody very soon after the inception of the new treatment, and in three weeks or so the patient was entirely convalescent.

The second case refused entirely to improve under this kind of treatment, but yielded completely to a pure milk diet. A quarter of a grain of calomel and ten grains of bismuth were given three times a day for the space of two days before beginning the pure milk diet.

[The "gravity injection" has also cured a case of intussusception in a child, completely disengaging the invaginated bowel.]

Local Rheumatism. — To subdue the painful state of the muscle, injections of one eightieth of a grain of atropia and one eighth of a grain of morphia well diluted should be made into the body of the muscle. This somewhat heroic mode of procedure has been invariably followed by the most excellent results. The patient, who, before the injection, was so sore that he could scarcely move without bringing on the most excruciating pain, after the injection holds his head up, feels the place where the application was made, then moving a little finds that his pain has gone, and looks and speaks the most intense gratitude. This is a particularly useful method of treatment in practice among the poorer classes, and by the almost instant relief it affords will win for the doctor the warmest consideration. Great care must always be had in the administration of morphia and atropia to nursing women, as belladonna is the most powerful antigalactagogue known, and too large doses of morphia not infrequently affect the child through its mother's milk.

Chronic Articular Rheumatism. — In one case the rheumatism, which was at first general, had become concentrated under the instep and in the sole of the foot. Its effects were intensified by the extreme natural flatness of the foot, which threw all the weight of the body on the instep and the middle of the sole, where the tissues were as hard and thick as under the heel. There was much ankylosis of the joints, and the plantar nerves were pressed upon and irritated by the indurated tissues. The treatment has been by manipulation of the ankylosed joints and counter-irritation applied to the nerve trunk higher up the leg. The continued current with the positive pole placed over the point of tenderness, and the negative pole higher up the nerve, may also be employed. A shoe should be constructed which shall take the strain off the painful point and throw the weight of the body on the outside of the foot,

In the second case, rheumatism of the ankle-joints in a young girl with marked rheumatic diathesis was brought on by scrubbing in her bare feet. The girl was able to notice the fact that the pain and soreness always increased before and during bad weather. The persistent use of iodide of potassium in the form of Zollikoffer's mixture has been followed by the best of results.

A CASE OF FRACTURE AND ONE OF DISLOCATION OF THE PATELLA.

MESSRS. EDITORS.—The subject of fractured patella has come somewhat into notice recently, and a number of cases, with their treatment, have been reported in the JOURNAL, and descriptions of apparatus, both simple and more complex, given. I think the treatment and appliances for this injury are very simple indeed, and to illustrate I will, with your permission, give you a case which occurred in my practice over thirty years ago,—the only case I ever happened to have, for I believe this kind of fracture is comparatively rare.

The patient was a gentleman some seventy years old. While walking, in the month of March, he stepped upon a large stone which was nearly buried in the ground and slightly glazed with ice. The foot slipped suddenly back, and his knee came square upon the stone, causing a complete fracture of the patella, transversely. I found the two fragments of the bone separated about one and one half inches. This occurred early in my practice. I had never seen a case, and hardly recollect of reading of one, but I knew that to effect a perfect cure the parts must be put in juxtaposition and kept there. My greatest or only fear was that the old gentleman would not be able to bear the confinement which the case would require, as he had been a man of active habits; but he said he would try. As near as I can recollect, my treatment was this: I placed the limb on a straight ham-splint properly padded; I cut two strips of good adhesive plaster about eighteen inches long and one and a half wide; I brought the separated pieces of bone perfectly together; one strip of the plaster I applied above the patella, bringing the ends down diagonally on each side of the leg and caused it to adhere firmly; the other I applied above the bone and brought it up the sides of the leg similarly to the other, which for the time kept the parts together. I then took a piece of soft sole leather, about four inches square, and made a hole in it that would accurately fit the patella; this was kept in place by a bandage around the knee, to be wet with alcoholic lotion as the case might require. There was no further trouble except in keeping the patient quiet. A complete bony union resulted, and in a few weeks the old gentleman was walking about attending to his business without crutch or cane.

Let me also report a case of dislocation of the patella which I had two weeks ago, occurring to a young lady some seventeen or eighteen years old, while in a game of blind-man's-buff. This accident, I believe, is much less frequent than the fracture of the bone. Indeed, I have never before seen a case except where the knee-joint itself was dislocated.

Late in the evening, on the 12th of September, I was sent for in haste to

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visit the lady, who, the messenger said, had "put her knee out of joint." In less than an hour, probably, from the time of the accident, I arrived at the house. I found the patient lying on the sofa, apparently suffering a good deal of pain. On examination I found to my gratification no dislocation of the knee, but one of the patella. The deformity was so great that I did not wonder that those who had seen it thought the knee out of joint. The bone was displaced inwards, the upper and outer edges being lodged under the inner condyle of the femur, the under surface looking towards the opposite limb. The leg was slightly flexed, and the knee-joint quite rigid. Upon a slight manipulation of the limb the patient complained greatly, whereupon I took a handkerchief from a lady standing by, saturated it with ether, and applied it to the face of the patient, and in three or four minutes she was unconscious, when, with a slight pressure on the bone in the right direction, it slipped into its place. Without the ether, I think, from the strong contraction of muscle, it would have required considerable effort and caused not a little pain to have restored the bone to its place. After some ten minutes the patient revived, and said her "knee felt all right," and not long after, with a little help, she walked to her carriage, got in, and drove home.

The only thing remarkable in this case is the slightness of the cause which effected so complete a displacement of the patella. It seemed, as well as I could ascertain, that in the play she was crouching down, and to avoid the hands of the catcher she made a sudden move sideways, when she felt something give way, and fell helpless to the floor.

A. D. BACON.

SHARON, September 27.

LETTER FROM LONDON.

MESSRS. EDITORS.—Professor Lister, recently appointed professor of surgery in King's College, inaugurated his appearance in London to-day by delivering the "introductory lecture" before that college in the presence of an audience which filled the hall to overflowing.

The address consisted in the main of an account of several series of experiments which he has lately made with the view of investigating certain processes of fermentation, and notably that fermentation of milk which delivers lactic acid as its most important product, and is popularly known as souring. While introducing his subject and speaking of fermentations in general, Professor Lister mentioned incidentally a fact first noticed by him in some of his late experiments, which may prove of some importance in surgical pathology, namely, that if blood is drawn with antiseptic precautions into a vessel allowing the entrance of air but not of the particles of dust suspended in it, the clot does not putrefy, and further does not contract and press out the serum as is observed under ordinary exposure to the air, but continues of a uniform jelly-like consistency.

Passing then to the account of his experiments on the lactic fermentation, the professor described first a series of experiments in which the milk was boiled to destroy any living organisms existing in it and then protected from the entry of material particles in the air. Although these precautions suc-

ceeded in preserving the milk from fermentation, still it might be doubted whether the ferment were not a chemical substance preexisting in the milk and destroyed or altered in the boiling.

It was towards the settlement of this point that Professor Lister's late investigations were directed.

The first series of experiments were undertaken to show that with proper precautions milk drawn directly from the cow into prepared vessels may be kept in contact with the air, under the protection of a loosely fitting glass cover, without undergoing fermentation. In these experiments, although he could quite easily procure milk which would remain free from the lactic fermentation, yet in all of his first experiments he found his tubes of milk to contain some form of vegetable growth, different in the different tubes, and in some cases quite new to him. At length by drawing the milk in the open air on a drizzling day, when most of the particles floating in the air might be supposed to have been washed to the ground, he succeeded in obtaining two specimens which kept free from any form of fermentation and under the microscope showed no traces of vegetable life, thus furnishing an extremely strong argument against the belief that the fermentative material preexisted in the milk.

The second series of experiments bore upon this same point. They were as follows: First, by careful microscopical examinations and calculations, upon the detail of which it is unimportant here to dwell, he decided as exactly as possible what quantity of distilled water it was necessary to add to a given specimen of sour milk in order to obtain a solution containing one bacterium lactis per drop. Supposing him to have obtained such a solution, it is evident that if to each of a number of protected cups of boiled milk be added one drop of this solution, some of these would receive drops containing one, two, or three bacteria, while others would receive drops containing none. Performing this experiment, he obtained such results as one would in theory expect. Some specimens soured quite rapidly, some more slowly, and others not at all. Modifying the plan, he added to one cup a drop calculated to contain four bacteria lactis, to several others drops calculated to contain two bacteria, and to still others drops calculated to contain one each. That to which supposedly four bacteria were added soured, as also more or less quickly all those to which two were added, while of those to which drops calculated to contain one bacterium were added several remained sweet, thus again supporting the theory. On examining all of these tubes microscopically, Professor Lister found that without exception all of those which soured contained the bacterium lactis in large quantities, while in those which remained sweet he found none of this bacterium. Arguing now upon these facts: If the fermentative material were a soluble chemical substance it is evident that in all of these experiments the result ought to have been the same, namely, a speedy fermentation. If the active principle were of a material form, distinct from the bacteria, it is inconceivable that these particles should correspond so closely in numbers with the bacteria that a liquid prepared to contain a certain number of bacteria per drop should contain an equal number of those other particles, and so produce the expected effects. And an equally insurmountable obstacle to this supposition is presented in the fact that the microscope showed bacteria lactis inva-

riably in those which fermented and never in those which did not. For even supposing that these imaginary particles existed in like numbers with the bacteria, it is entirely inconceivable that they should with such unfailing accuracy always fall together in the same drop. Professor Lister concluded by saying that even if he had not thus proved this point to the satisfaction of others, at least he thought he had pointed out a road to its solution.

Professor Lister begins this week his work in the King's College Hospital, and will have one and perhaps more entirely new wards at his disposal.

A. T. C.

LONDON, October 1, 1877.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING OCTOBER 13, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228	465	22.45	27.46
Philadelphia	850,856	249	15.22	22.88
Brooklyn	527,830	212	20.88	24.31
Chicago	420,000	141	17.46	20.41
Boston	363,940	125	17.86	23.39
Providence	103,000	48	24.23	18.34
Worcester	52,977	23	22.58	22.00
Lowell	53,678	17	16.47	22.21
Cambridge	51,572	19	19.16	20.54
Fall River	50,372	25	25.80	22.04
Lawrence	37,626	19	26.26	23.32
Lynn	34,524	12	18.07	21.37
Springfield	32,976	7	11.04	19.69
Salem	26,739	6	11.67	23.57

BOSTON DISPENSARY. — At the annual meeting of the corporation the following gentlemen were elected for the ensuing year : Managers, J. H. Wolcott, George H. Kuhn, Henry B. Rogers, William R. Lawrence, Thomas Wigglesworth, Samuel Johnson, Rufus Ellis, and Francis W. Lawrence ; treasurer, Francis E. Parker. The board of managers was organized by the choice of J. H. Wolcott for chairman and Arthur Lincoln for secretary. The following appointments were made : Superintendent, William H. H. Hastings ; surgeons, Thomas Waterman, Thomas Dwight, Charles E. Inches, Walter Ela ; ophthalmic surgeon, William S. Dennett ; physicians, Robert Disbrow, Reginald H. Fitz, Josiah L. Hale, William H. Baker, Joseph P. Oliver, Allen M. Sumner, Frederick W. Vogel, William C. Holyoke, George B. Shattuck, Robert M. Lawrence, John Dixwell, James B. Ayer, Frederic C. Shattuck, Edward H. Bradford, John F. Bush, Francis H. Davenport ; department for diseases of the nervous system, Samuel G. Webber, David F. Lincoln ; department for diseases of the skin, Francis B. Greenough ; dental department, Henry F. Dunkel ; district physicians, George W. Copeland, Thomas M. Rotch, Edward F. Hodges, Maurice H. Richardson, Samuel Howe, Arthur T. Cabot, Abner Post, William J. G. Fogg, Thomas G. Reed ; apothecary, John J. Kelly.

SUFFOLK DISTRICT MEDICAL SOCIETY. — A stated meeting will be held at the rooms, 36 Temple Place, on Saturday evening, October 27th, at seven and a half o'clock. The following paper will be read : —

Dr. G. M. Garland, Pneumono-Dynamics, with Experimental Demonstration.

Tea, etc., at nine o'clock.

ERRATUM. — Page 441, foot note 2, for "First International Society," read "First International Otological Society."